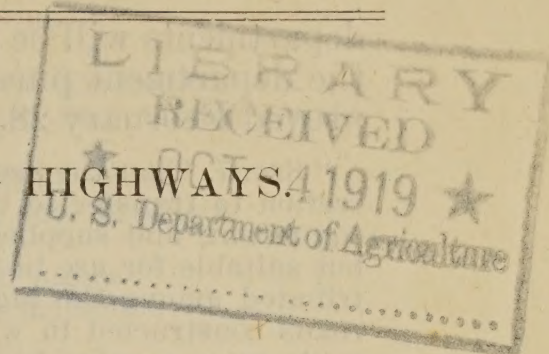


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WAR MATERIAL FOR IMPROVING HIGHWAYS. 1919



LETTER

FROM

THE SECRETARY OF AGRICULTURE,

IN RESPONSE TO

RESOLUTION 108 OF JULY 1, 1919, DIRECTING A REPORT OF THE QUANTITY OF WAR SUPPLIES REQUIRED FOR IMPROVEMENT OF HIGHWAYS AUTHORIZED TO BE DISTRIBUTED UNDER POST OFFICE ACT FEBRUARY 28, 1919.

JULY 21, 1919.—Ordered to lie on the table and to be printed.

DEPARTMENT OF AGRICULTURE.

To the SENATE:

Pursuant to Senate resolution 108, I have the honor to report as follows:

It is observed that the resolution directs the Secretary of Agriculture—

to report to the Senate the quantity and description of war material, equipment, and supplies, particularly the number and description of cars, trucks, and tractors, which will be required for the use and improvement of highways and which were authorized to be distributed among the highway departments of the several States to be used on the roads constructed in whole or in part by Federal aid as provided by section 7 of the act entitled "An act making appropriations for the service of the Post Office Department for the fiscal year ending June 30, 1920, and for other purposes," approved February 28, 1919.

Highway construction and improvement under the original Federal aid road act approved July 11, 1916, as amended by the above-mentioned act approved February 28, 1919, covers a period of several years, and this department does not know what the final requirements of each State highway department will be. The Senate is, of course, aware that during the war highway construction moved slowly on account of shortage in labor and the control of building material for war purposes. It has only been recently that the several State highway departments have been able to begin active operations on their respective new program, which can not be compared in importance and size with the work which was done during any preceding year. The department regrets, therefore, that it can not state accurately what the final requirements of the respective State highway

departments will be and can only report to you what is being done by the department pursuant to section 7 of the above-mentioned act approved February 28, 1919, which is as follows:

"SEC. 7. That the Secretary of War be, and he is hereby, authorized in his discretion to transfer to the Secretary of Agriculture all available war material, equipment, and supplies not needed for the purposes of the War Department, but suitable for use in the improvement of highways, and that the same be distributed among the highway departments of the several States to be used on roads constructed in whole or in part by Federal aid, such distribution to be made upon a value basis of distribution the same as provided by the Federal aid road act approved July 11, 1916: *Provided*, That the Secretary of Agriculture, at his discretion, may reserve from such distribution not to exceed 10 per cent of such material, equipment, and supplies for use in the construction of national forest roads or other roads constructed under his direct supervision.

At the time section 7 above mentioned was enacted into law it was impossible for the Secretary of War immediately to determine what war material, equipment, and supplies would not be needed for the purposes of the War Department. However, the urgent requirements of the several State highway departments in the matter of beginning active work on their enlarged programs made it necessary to distribute as soon as possible such of the material, equipment, and supplies as it became available.

CANVASS OF STATES.

Immediately following the approval of the Post Office appropriation act, section 7, of which it is quoted above, this department ascertained from the War Department the general classes and character of the equipment and supplies "which might become" available for distribution to the States, following the determination by the War Department of the equipment and supplies no longer needed for the purposes of the War Department. In order to determine the amount of equipment and supplies that the States would need for the purposes of highway improvement, the following letter was sent under date of March 12 to each of the State highway departments:

GENTLEMEN: Referring to our letter of the 11th instant there is inclosed a list of materials and equipment, some of which it may be possible to obtain from the War Department.

In making your requests, it is advisable to have them in as much detail as possible. For example, should you request any steam shovels, motor trucks, tractors, trailers, dredges, concrete mixers, etc., please state such details as size, weight, capacity, etc.

LIST OF MATERIALS AND EQUIPMENT.

Machine tools, engineering and construction equipment:

- All metal and wood working tools.
- Steam shovels.
- Hand tools.
- Forging equipment.
- Iron and structural workers' power tools and machinery.
- Contractors' equipment, such as dredges, ditchers, concrete mixers.
- Industrial railways, etc.

Building material:

- Water supply.
- Fabricated steel.
- Roofing.
- Wall board.
- Paints.
- Hardware.
- Cement.
- Heating.
- Electrical equipment.
- Power plant.
- Machinery.

LIST OF MATERIALS AND EQUIPMENT—continued.

Truck and motor equipment:

Trucks.

Trailers, animal and hand-drawn vehicles.

General supplies:

Tentage, paulins.

Harness, saddlery.

Saddlers' supplies.

Shelf and heavy hardware.

Tools, handles, tool chests, containers.

General supplies—Continued.

Mess, camp, and kitchen equipment.

Brooms and brushes.

Hemp and jute products.

Remount:

Horses and mules.

Raw and scrap materials:

Explosives.

Ordnance and ordnance stores:

Tractors and trailers.

Caterpillars.

In response to this inquiry a number of the States submitted detailed statements and descriptions of the items they would need. Others took the position that they wished to receive their quota of any of the items contained in the above list which might be declared surplus by the War Department. In order to arrive at a more definite statement of the needs of the States, a second canvass relative to various items was made under each of the following dates: April 24, May 7, and June 10. These two canvasses have been further supplemented by a large number of communications to and from the State highway departments and by personal conferences with the executive officers of the State highway departments. Based on the information secured from these sources, this department believes that the following lists, classified under the several headings, set forth the needs of the States as accurately as they can be determined at the present time. At different times, as the Secretary of War found that certain war materials, equipment, and supplies were not needed for the purposes of the War Department, he has made allotments to this department for the purpose of distribution, covering, in general, items appearing on the above list. Such lists are now being received from the Secretary of War from time to time.

MOTOR TRUCKS AND MOTOR CARS.

The Secretary of War has on four different occasions declared in the aggregate of 24,000 motor trucks of all sizes and different makes to be available for distribution, and he has also declared 1,075 Ford touring cars and 550 used passenger cars of other makes likewise available. Of the 24,000 motor trucks, a total of 20,519 have been allotted among the several State highway departments, as shown by the list hereinafter set out, and the entire number of Ford and other used cars have been allotted, as shown by said list. Definite shipping instructions have been given the War Department for more than 13,500 of these trucks and cars. The allotment as shown by the said list is final.

	Trucks.				Fords, first.	Other autos, first.
	First.	Second.	Third.	Fourth.		
1. Alabama.....	116	50	86	180	21	11
2. Arizona.....	76	33	56	117	14	6
3. Arkansas.....	92	39	69	143	17	8
4. California.....	165	72	124	261	30	15
5. Colorado.....	97	41	71	149	17	9
6. Connecticut.....	34	14	25	51	6	4
7. Delaware.....	9	4	7	14	2	1
8. Florida.....	63	28	46	99	11	6
9. Georgia.....	146	66	110	231	27	4
10. Idaho.....	68	30	49	104	12	6
11. Illinois.....	240	105	178	375	44	22
12. Indiana.....	149	66	110	231	27	14
13. Iowa.....	158	70	117	250	29	15
14. Kansas.....	157	70	117	249	29	15
15. Kentucky.....	107	47	79	167	19	10
16. Louisiana.....	74	33	56	117	14	7
17. Maine.....	52	23	38	83	10	5
18. Maryland.....	48	22	36	75	9	4
19. Massachusetts.....	81	35	61	126	15	7
20. Michigan.....	159	70	117	250	29	15
21. Minnesota.....	156	68	116	244	28	14
22. Mississippi.....	98	42	73	153	18	9
23. Missouri.....	186	82	138	291	34	17
24. Montana.....	110	48	82	173	20	10
25. Nebraska.....	117	51	87	185	21	11
26. Nevada.....	72	30	52	111	13	7
27. New Hampshire.....	22	10	16	35	4	2
28. New Jersey.....	65	29	49	102	12	6
29. New Mexico.....	89	39	65	138	16	8
30. New York.....	273	119	202	427	50	25
31. North Carolina.....	127	55	93	195	23	12
32. North Dakota.....	86	38	63	132	15	8
33. Ohio.....	203	89	151	318	37	19
34. Oklahoma.....	127	55	95	199	23	12
35. Oregon.....	88	38	64	136	16	8
36. Pennsylvania.....	252	109	187	394	46	23
37. Rhode Island.....	13	5	9	21	2	1
38. South Carolina.....	79	34	59	124	14	8
39. South Dakota.....	90	39	66	138	16	9
40. Tennessee.....	123	54	92	193	22	11
41. Texas.....	321	141	237	500	58	30
42. Utah.....	64	28	46	99	11	6
43. Vermont.....	25	11	19	40	5	3
44. Virginia.....	108	47	81	170	20	10
45. Washington.....	81	34	59	124	14	7
46. West Virginia.....	58	26	43	90	11	5
47. Wisconsin.....	140	60	104	217	25	13
48. Wyoming.....	69	30	49	104	12	7
Forestry.....	26	-----	-----	92	32	-----
Public roads.....	66	42	44	354	75	55
Total.....	5,428	2,371	3,949	8,771	1,075	550

CONSTRUCTION AND OPERATING EQUIPMENT.

A request for construction and operating equipment, based on the estimated needs of the several States, was sent to the War Department. The Secretary of War in replying to the request stated that the War Department would deliver to the Department of Agriculture out of the surplus in the United States or France a sufficient amount of equipment to meet the estimate, which is as follows:

400 road rollers, steam and gas driven.	150 centrifugal pumps up to 4 inches, with power.
700 concrete mixers.	75 diaphragm pumps gasoline driven.
600 road graders.	500 rock-crushing outfits complete, capacity 125 tons to 200 tons per day.
400 elevating graders.	200 clamshell, orange peel, and bottom-dump buckets.
200 sprinkling wagons.	125 road scarifiers.
200 road oilers.	50 caterpillar and drag-line excavators.
125 derricks, 30 to 60 foot boom.	
100 pile-driver outfits complete.	
200 complete air-drill outfits.	
250 steam pumps, up to 4 inches.	

700 road and railroad plows.	275 electric motors, 2 to 50 horsepower.
300 rooter plows.	1,300 pulley blocks.
160 automotive cranes.	6,000 drag scrapers.
3,600 trailers for tractors.	2,000 Fresno scrapers.
1,000 miles industrial railway track.	6,000 wheel scrapers.
200 industrial railway locomotives	500 Maney 4-wheel scrapers.
3,500 industrial railway dump cars.	300 stump pullers.
15,000 feet rubber hose.	500 road drags.
5,000 feet steam hose.	4,000 wheel barrows.
40 portable asphalt plants.	10 dredges.
200 steam shovels, capacity 1 yard or less.	10 ditching machines.
6,500 dump wagons.	10 trenching machines.
250 conveyors, gravity and power.	6 back-filling machines.
35 donkey, 200 hoisting, and 75 gaso- line engines, 5 to 30 horsepower.	200 screening plants.
375 complete steam-drill outfits.	100 wagon loaders.
250 portable air-compressor outfits with power.	400 blasting machines complete.
100 boilers, 15 to 40 horsepower.	100,000 feet hoisting cable from $\frac{1}{4}$ to 1 inch in diameter.
	10,000 feet air hose.
	100,000 linear feet Manila rope, $1\frac{1}{2}$ to 2 inches in size.

It is thought that the final requirements of the several State highway departments will be in excess of this estimate.

CONSTRUCTION MATERIALS.

The following list of construction materials is based on the estimated needs of the several States, ascertained as hereinbefore described:

550,000 barrels bituminous binders.	50 tons nails.
50,000 linear feet prepared joint filler.	35 tons spikes.
2,110,000 bags Portland cement.	20 tons bolts.
1,000,000 tons gravel.	10 tons nuts, threaded.
1,000,000 tons crushed stone.	10 tons nuts, blanks.
Brick, all available.	56,025 linear feet cast-iron culvert pipe from 12 to 36 inches in diameter.
5,000,000 feet bridge form and building lumber.	10,000,000 pounds T. N. T.
40,000 linear feet steel forms for con- crete road construction.	109,240 exploders.
120 carloads corrugated metal culvert.	2,000 miles telephone wire.
150 miles of steel or iron pipe, from $\frac{1}{2}$ to 3 inches in diameter, with fit- tings.	50 permanent wall telephone sets, complete, with accessories.
1,186 tons structural steel.	100 portable telephone sets, complete, with accessories.
10,000 tons reinforcing steel.	1,000 sets single heavy-work harness.
16,000 tons sheet-metal roofing.	3,000 sets heavy double-work harness.
2,000 tons wire fencing.	600 concrete buggies.
674,000 industrial railroad ties.	4,404 high-speed trailers for trucks.
10,000 gallons paint for wood and steel bridges, guard rails, etc.	

These materials are being allotted to the several State highway departments as different items appearing herein are declared by the Secretary of War to be available for distribution. Shipping directions have been given for the following amounts:

2,000 bags Portland cement.	41,800 exploders.
3,942 industrial railroad ties.	72 concrete buggies.
12 kegs spikes.	
37,921 linear feet cast-iron culvert pipe.	

FIELD AND OFFICE EQUIPMENT.

The following list of field and office equipment is based on the estimated needs of the several States, ascertained as hereinbefore described:

1,062 engineers' transits.	10 blue-print machines.
1,146 engineers' levels.	283 office desks.
1,188 Abney levels.	198 typewriter desks.
3,055 steel tapes.	480 office tables.
1,440 level rods.	326 drafting tables.
50 range poles.	365 drafting stools.
180 metallic tapes.	315 field office desks.
2 Universal testing machines, capacity 200,090 pounds.	299 revolving office chairs.
400 rolls drafting paper.	805 office chairs.
110 rolls tracing cloth.	3,387 units filing cases.
130 rolls blue-print paper.	100 sets drafting instruments.
120 rolls cross-section paper.	100 sets assorted outfits, drafting supplies.
2,000 engineers' note books.	100 pocket compasses.
88 calculating machines.	100 stadia hand transits.
6 pantagraphs.	100 hand levels.
228 Universal drafting machines.	30 pedometers.
592 planimeters.	30 odometers.
366 adding machines.	60 steel-tape mending outfits.
63 comptometers.	9 plane tables.
507 typewriters.	108 aneroid barometers.

These materials are being allotted to the several State highway departments as different items appearing herein are declared by the Secretary of War to be available for distribution. Shipping directions have been given for the following amounts:

258 engineers' transits.	16 office chairs.
284 engineers' levels.	3 calculating machines.
128 Abney levels.	28 Universal drafting machines.
95 steel tapes.	14 planimeters.
165 level rods.	6 adding machines.
40 range poles.	8 comptometers.
365 drafting stools.	58 typewriters.
140 field office desks.	19 office desks.

CAMP MESS AND KITCHEN EQUIPMENT.

The following list of camp mess and kitchen equipment is based on the estimated needs of the several States, ascertained as hereinbefore described:

460 complete outfits of mess and kitchen equipment for units of various sizes averaging 40 men.	120 heating stoves for tents.
100 sets assorted kitchen utensils.	140 medicine chests, complete.
200 sets assorted dining-room outfits.	17,000 tents from 10 by 10 to corral tents.
23,000 galvanized-iron buckets.	25,100 Army blankets.
320 field ranges.	316,000 square feet of tarpaulin, assorted sizes.
560 Sibley stoves.	

These materials are being allotted to the several State highway departments as different items appearing herein are declared by the Secretary of War to be available for distribution. Shipping directions have been given for the following amounts:

5,414 galvanized-iron buckets.	25,087 Army blankets.
17,563 tents.	

In the States where convict labor is largely employed camp mess and kitchen equipment is of great value in properly maintaining the necessary crews in the field, and in the States where great difficulty

is being experienced in securing contractors to undertake road construction, a considerable amount of work will have to be done by day labor forces. There will be many more road crews at work in the field this year than during any previous year, and this equipment will be of great advantage in getting such crews organized and operating.

GENERAL SUPPLIES.

The following list of general supplies is based on the estimated needs of the several States, ascertained as hereinbefore described:

100 sets shelf and heavy hardware, assorted supplies.	63,000 shovels.
4,200 axes with handles.	2,000 sqades.
1,600 ax handles.	1,260 crosscut saws.
1,680 adzes.	475 monkey wrenches.
1,200 brush hooks.	475 mason's trowels.
1,900 crowbars.	475 saw-filing outfits.
1,080 cant hooks.	12,677 lanterns.
300 grindstones	100 acetylene camp lights.
240 carborundum grinders.	600 paint brushes.
1,000 hammers, assorted sizes.	120 wire brushes.
100 riveting hammers.	100 tons drill steel.
2,130 striking hammers.	10 tons horseshoes.
5,265 hatchets.	10 tons mule shoes.
574 B. P. machinist hammers.	1 ton horseshoe nails.
2,100 shovel handles.	10 tons solid drill steel, $\frac{3}{4}$, $\frac{7}{8}$, and 1 inch in diameter.
7,050 pick handles.	10 tons hollow drill steel, $\frac{3}{4}$, $\frac{7}{8}$, and 1 inch in diameter.
920 sledge handles.	6,000 pounds axle steel, assorted sizes.
13,300 picks.	6,000 pounds tire steel, assorted sizes.
28,866 mattocks.	1,679 log chains.
950 drills.	
650 drill bits.	

These materials are being allotted to the several State highway departments as different items appearing herein are declared by the Secretary of War to be available for distribution. Shipping directions have been given for the following amounts:

6 axes with handles.	3 sledge handles.
192 ax handles.	3,030 picks.
106 striking hammers.	28,866 mattocks.
514 B. P. machinist hammers.	51,578 shovels.
850 hatchets.	2,000 spades.
50 shovel handles.	10,960 lanterns.
260 pick handles.	150 log chains.

It will be observed that a large portion of the foregoing list consists of hand tools that are used constantly in road construction, particularly in the doing of work involved the drilling and blasting of rock in building or widening roads where rock excavation is encountered.

MACHINE TOOLS, WOODWORKING TOOLS, AND MISCELLANEOUS OUTFITS.

The following list of machine tools, woodworking tools, and miscellaneous outfits is based on the estimated needs of the several States, ascertained as hereinbefore described.

15 complete machine-shop outfits, including lathes, drills, planers, fittings, etc.	3 end milling machines.
3 swing engine lathes, 14 inches to 20 inches.	3 planers.
	4 power punches.
	3 shapers.
	4 power shears.

3 shop screw presses, 25 tons capacity.	11 complete woodworking outfits, including lathes, saws, planers, fittings, and accessories.
12 complete set pipe dies from 3 inches down.	12 boring machines.
12 complete sets tops and dies for bolts and nuts.	30 wheelwright outfits, complete.
552 complete sets of blacksmith outfits, with forges, anvils, and accessories.	10 tire setters.
306 complete sets carpenter tools and chests.	10 farriers' outfits, complete.
	6 diving outfits, complete, with pumps.

It is thought that the final requirements of the State highway departments as to a number of the above-mentioned articles will be in excess of this list, particularly blacksmith outfits, as they constitute a necessary adjunct to each well-equipped road crew.

ANIMALS.

The following list of animals is based on the estimated needs of the several States, ascertained as hereinbefore described:

2,050 heavy draft mules.	10 saddle horses.
850 heavy draft horses.	

From a number of States we have had urgent requests to supply draft animals for use on trails in new territory, as in the forest areas, where the motor-truck equipment can not be used.

Respectfully,

C. F. MARVIN,
Acting Secretary.

